

REMARKS

Claims 19-21, 23-29, and 32 are amended; new claims 35-40 are added; and claims 17-18, 22, 30-31, and 33-34 are canceled, without prejudice or disclaimer. Claims 19-21, 23-29, 32, and 35-40 are pending.

Contrary to paragraph 1 on page 2 of the office action, it is respectfully submitted that, prior to the present amendment, the pending claims were numbered 17-34, since the preliminary amendment filed February 21, 2002 listed new claims 17-34, with claims 33-34 being listed on the top of page 5 of the preliminary amendment, on the same page as and above the Remarks.

To clarify the file history and claim numbering, claims 33-34 from the preliminary amendment filed February 21, 2002 have been canceled, and replaced with new claims 35-36 reciting subject matter identical to the previously submitted claims 33-34, respectively.

The amendments to the claims and the added new claims 35-40 are based on the application as originally filed, so it is respectfully submitted that no new matter has been added.

In particular, as previously stated, new dependent claims 35-36 recite the subject matter of canceled claims 33-34, new independent claim 37 recites the subject matter of canceled claim 18, new dependent claim 38 recites the subject matter of canceled claim 22, new independent claim 39 recites the subject matter of canceled claim 30 and its base claim and intervening claims, and new independent claim 40 recites the subject matter of canceled claim 31 and its base claim and intervening claims.

Claims 18 and 22 were canceled and replaced with claims 37-38, respectfully, in order to properly and clearly correct the mathematical equations and symbols, and for the subject matter of claims 17-18 to be combined for claim 37 to be in independent form.

The dependence of claims 19, 23-24, 26, 28, and 32 have been amended to depend from the appropriate new claims 37-38 and 40, respectively, which replace the correspondingly canceled claims 18, 22 and 31, respectively.

In the office action, it is stated that claimed 30-32 would be allowable if rewritten. Claims 30-31 have been canceled, and their respective subject matter is recited in new claims 39-40, respectively, and new claims 39-40 comply with 35 U.S.C. § 112, second paragraph.

Accordingly, it is respectfully submitted that claims 32 and 39-40 are allowable, so entry and favorable consideration of new claims 39-40 and allowance of claims 32 and 39-40 are respectfully requested.

In the office action, claim 21 was objected to, and claims 18, 24-25, and 28-32 were rejected under 35 U.S.C. § 112, second paragraph. Claim 18 was canceled and replaced with claim 37, claim 31 was canceled and replaced with claim 40, and claims 24 and 28 are amended. It is respectfully submitted that amended claims 24-25, 28-29, and 32; and new claims 37 and 40 comply with 35 U.S.C. § 112, second paragraph, so reconsideration and withdrawal of the objection and rejection are respectfully requested.

In the office action, claims 17-20 and 22-25 were rejected under 35 U.S.C. § 102(e) in view of U.S. Patent Number US 6,278,419 to Malkin; claim 17 was also rejected under 35 U.S.C. § 102(e) in view of U.S. Patent Number 6,433,761 to Remitz; claim 21 was rejected under 35 U.S.C. § 103(a) in view of Malkin and U.S. Patent Number 3,738,035 to Bricker; claims 26-27 were rejected under 35 U.S.C. § 103(a) in view of Remitz and U.S. Patent Number 5,041,947 to Yuen et al.; and claims 28-29 were rejected under 35 U.S.C. § 103(a) in view of Remitz and U.S. Patent Number 2,293,990 to Lewis et al.

The applicants respectfully traverse the rejections of the pending claims. It is respectfully submitted that all pending claims are patentable over the cited art.

In particular, Malkin discloses a stroboscopic display device with a controlling means; only one detached electric motor 136 in FIG. 5; a hollow cylindrical shaft 116 in FIG. 5 placed in a bearing unit and kinematically linked to the output shaft of the electric motor by means of a V-belt transmission; a massive and, hence, in itself rigid and stable discoid “coextensive opaque barrier” 20 in FIG. 1; or a massive element located at equal angular distances radial arms 114 in FIG. 5, which is rigidly assembled with the hollow shaft; and at least four thick and, hence, in themselves rigid and stable straight rods 10 in FIG. 1, which are attached to the “barrier” or arms at equal angular distances preferably for convenient definition of their angular position with respect to the sensor, and, to a substantially lesser degree, for reciprocal balancing, and to serve as carriers of single vertical arrays of LEDs.

Thus, the rigid rod-carriers 10 of the LEDs in Malkin are cantilevered only in respect of the intermediate rotatable element such as rigid barrier 20 or also rigid arms 114, whereas with respect to the shaft 116, these rods 10 are located solely eccentrically in Malkin.

In essence, operational functionality of each of the display devices of Malkin is practically equivalent to operational functionality of an earlier known display device based on an annular drum as a carrier of single vertical arrays of LEDs, as is well known in the art as in U.S. Patent 4,689,604 mentioned in the original specification of the present invention. Such a restriction of operational functionality in Malkin, as in the other prior art, is conditioned by being only a circular cylindrical form of demonstrational surface that may be formed when the rods 10 of Malkin rotate together with large and well visible barrier 20 or arms 114.

To all appearances, Malkin had no disclosure, thought, or suggestion about possible forms of rod-carriers of LEDs or different light sources, especially, point light sources, as in the present invention.

One having ordinary skill in the art would not look to Malkin for the present invention, since, in fact, Malkin teaches away from the present invention, since one having ordinary skill in the art would not identify a “coextensive opaque barrier” 20 as described in Malkin with the at least one “shaft” recited in the present invention.

In addition, Malkin discloses only a straight generatrix, but one having ordinary skill in the art would recognize that a demonstration of only straight generatrix of the circular cylinder cannot and does not disclose or suggest all other possible generatrices, as may be used in the present invention.

Furthermore, one having ordinary skill in the art would not identify the configuration of LEDs in Malkin with a balancer as in the present invention, since Malkin only discloses one of a few known thick rods-carrier of LEDs, which is fixed and balanced onto a massive barrier 20 or arms 114.

On the contrary, the proposed balancer of the present invention can be added to the each single thin and small rod-carrier of PLSs, and can also be immediately cantilevered to an output shaft and other components.

Accordingly, all of the elements, steps, and features of the present invention are not disclosed or suggested by Malkin, so the claimed invention is patentable over Malkin.

The remaining art does not remedy the deficiencies of Malkin to provide all of the elements, steps, and features of the present invention.

In particular, Remitz relates preferably to arrangements of light sources and to controlling means, which must provide their programmed on-off switching. The basic mechanical part of the apparatus of Remitz according to FIG. 6 are only one motor 29; a shaft 25 placed in a bearing unit; a massive and, hence, in itself rigid and balanced turntable 24 that is rigidly assembled with the shaft 25; a massive intermediate rotatable board 23 that is rigidly assembled with the turntable 24; and at least one thick and in itself rigid and stable straight bar 21, that is, a rod attached to the board 23 and which serves as carrier of vertical rows of many-colored light sources 22.

It is clear in Remitz that the rigid bar-carrier 21 of light sources is cantilevered with respect to the second intermediate element such as a rigid rotatable board 23, whereas with respect to the shaft 25, this bar is located solely eccentrically. In other words, the mechanical part of the display device proposed by Remitz is practically equivalent to the mechanical part of Malkin, so Remitz cannot provide all of the elements, steps, and features of the present invention which Malkin lacks.

Therefore, operational functionality of each apparatus made according to Remitz is also practically equivalent to operational functionality of the display device based on the annular drum as in the cited art U.S. Patent Number 4,689,604. Such a restriction of operational functionality is conditioned by only a circular cylindrical form of a demonstrational surface that may be formed when the bars 21 of Remitz rotate together with a large and well-visible board 23 and turntable 24.

Similarly, Bricker fails to cure the deficiencies of Malkin or Remitz, since the lighted display of Bricker is not a stroboscopic display device. For all practical purposes, the Bricker device is an analog of some child's play toy such as phenakistoscope, also known as a fantascop, as well as zoetropes or other animation or animation-simulation devices.

Accordingly, Bricker discloses a device having a case, a preferably single power light source such as usually used in the 1960s such as an incandescent lamp placed within the case, a rotatable platform with plastic strips for imitation of flame tongues, a fan for imitation of flame blowing, and many other details, which are not related to subject matter of the present invention.

Thus, one having ordinary skill in the art would not combine the cumbersome mechanical part of the display device of Malkin with the also cumbersome luminous case of Bricker.

Regarding Yuen and Lewis, these patents describe rotary drives having at least two parallel shafts and mechanical synchronizers of their rotation.

However, Yuen discloses such display devices that have two independently controllable motors with output shafts which are not required to be parallel, and such output shafts are not described as being cantilevered to the rods-carriers of point light sources.

Similarly, Lewis discloses an "ancient" projection apparatus having a voluminous case having an immovable display surface, a single power light source such as used in the 1930s or 1940s, such as incandescent lamps placed within the case, preferably three combined incandescent lamps placed between the display surface shafts, each of which is equipped with set of vanes.

It is respectfully submitted that none of the cited art, individually or in combination, disclose or suggest all of the elements, steps, and features of the present invention, so all pending claims are patentable over the cited art. Therefore, reconsideration and withdrawal of the rejections are respectfully requested.

Accordingly, entry and approval of the present amendment and allowance of all pending claims are respectfully requested.

In case of any deficiencies in fees by the filing of the present amendment, the Commissioner is hereby authorized to charge such deficiencies in fees to Deposit Account Number 01-0035.

Respectfully submitted,



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